

MICROELECTROMECHANICAL SYSTEM BASED SENSORS, SENSOR ARRAYS, SENSING SYSTEMS, SENSING METHODS AND METHODS OF FABRICATION

Abstract

A microelectromechanical system (MEMS) based sensor comprises: a substrate defining a plane; a first conductive material layer having a first stress, a first portion of the first conductive material layer being connected to the substrate and extending in a substantially parallel direction to the plane defined by the substrate and a second portion being disconnected from the substrate and extending in a substantially non-parallel direction to the plane defined by the substrate; and a sensor material layer formed over at least the second portion of the first conductive material layer, the sensor material layer having a second stress that is less than the first stress of the first conductive material layer. The stresses form a stress gradient that bends the second portion of the first conductive material layer and the sensor material layer formed over the second portion of the first conductive material layer away

from the substrate.